

December 2007 Update

California Gulch Superfund Site

Leadville, Colorado

(Five-Year Review Date: 9/28/07)

***H**ighlights Since the 2007 Five-Year Review*

- **EPA pumping water to relieve pressure on the Leadville Mine Drainage Tunnel**
- **Work expected to begin on 165 residential properties in the summer of 2008**
- **OU 12 Remedial Investigation and Feasibility Study underway with anticipated completion in 2008**

Brief Site History: The California Gulch site is located approximately 100 miles southwest of Denver, Colorado. Historic activities at the site included mining, mineral processing and smelting activities. An estimated 26 million tons of ore have been produced at the site, although today the majority of mines are inactive. The site was listed on the NPL in 1986 because of concerns about the impact of mine drainage waste on surface waters in California Gulch and the impact of heavy metals loading in the Arkansas River. Subsequent studies indicated that surface water contained cadmium, copper, lead and zinc at levels that exceeded water quality criteria. Soils at the site were found to contain elevated levels of arsenic, zinc, lead, copper and cadmium. The site has been divided into 12 operable units which represent geographic areas of responsibility.

Cleanup Activities Completed: The 1994 Consent Decree assigned responsibility for cleanup to EPA, ASARCO, Resurrection Mining Company, and the Res-ASARCO joint venture. Construction of the Yak Tunnel treatment plant began in 1990 to improve water quality of the Arkansas River. Other cleanup efforts by responsible parties are designed to:

- Control drainage of acid mine runoff
- Consolidate and cap mine piles
- Cleanup residential soils
- Reuse existing slag piles
- Implement Lake County Community Health Program to educate the public and offer cleanup of residential properties

Current Status: Remedial actions are still underway. The Yak Tunnel water treatment plant is operational. Since 1995, EPA and the responsible parties have undertaken several Removal Actions at the source areas with the greatest impact to site surface water, and ultimately the Arkansas River. These actions resulted in the

consolidation, containment and control of approximately 350,000 yards of contaminated soils, sediments and mine-processing wastes. As work is completed, EPA is proceeding to delete those portions of the site from the National Priorities List (NPL). Plans for site-wide water quality improvements include large-segment stream restoration; mine-pile consolidation and capping, run-on and run-off control of mine-water discharge, and wetlands improvements.

Summary of Protectiveness: The remedies for OUs 1, 2, 3, 4, 6, 7, 8, 9 and 10 were found to be currently protective of human health and the environment. Remedies have not been completed in OUs 5, 6 and 11. In addition, a record of decision (ROD) has not been released for OU12. Therefore, these OUs were not formally assessed under the 2007 Five-Year Review although a summary of progress to date and potential issues of concern is provided in the body of the report. Remedial work at OU 5, Arkansas Valley Smelter and Colorado Zinc-Lead Mill, is incomplete. Therefore, the remedy is not yet protective although overall protectiveness is expected to be achieved once remedial construction is completed. Until the selected remedy is fully implemented at OU6, risks associated with this suspected “mine pool” remain. The remedy for OU 11, selected in the 2005 ROD, has not been implemented. OU 12 covers the entire California Gulch site and was designated to address site-wide surface and groundwater. Under the provisions of the 1994 CD, OU 12 will be addressed after completion of source remediations in OUs 2 through 10.

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Issues	Recommendations / Follow-Up Actions	Follow-Up Actions (Status/Due Date)	Status of Follow-Up Actions 12/07	Responsible Party
1) OU 2: Additional Institutional Controls (ICs) may be needed to ensure protection of human health in the event of changes in zoning or to preclude disturbance of engineered remedies as a result of development consistent with current zoning.	Investigate the impacts of mine permit expiration on remedy protectiveness and develop/ implement ICs, as necessary.	12/2008	Lake County has agreed to implement ICs on engineered remedies. Expect to have ICs in place by 12/08.	Colorado Department of Public Health and Environment (CDPHE) EPA Lake County

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2) OUs 3, 4 and 10: ICs are needed to ensure protection of human health in the event of changes in zoning or to preclude disturbance of engineered remedies as a result of development consistent with current zoning.	Prepare an Explanation of Significant Differences (ESD) identifying appropriate ICs and implement the controls.	12/2008	Lake County has agreed to implement ICs on engineered remedies. Expect to have ICs in place by 12/08.	EPA Lake County
3) OUs 7 and 8: ICs are needed to ensure protection of human health in the event of changes in zoning or to preclude disturbance of engineered remedies as a result of development consistent with current zoning.	Develop and implement ICs.	12/2008	Lake County has agreed to implement ICs on engineered remedies. Expect to have ICs in place by 12/08.	EPA Lake County
4) OU 1: Rising water levels in upper portion of Yak Tunnel.	Monitor effectiveness of dewatering of the Black Cloud Mine.	On-going		ASARCO Res-ASARCO
5) OU 1: Financial assurance for continued operation of the Yak Treatment Plant has not been established.	Establish financial assurance	12/2007	Anticipated in 2008	ASARCO Res-ASARCO
6) OU 2: Settlement funds have been exhausted and use of Superfund resources is not permitted.	Funding of operation and maintenance (O&M) requires clarification.	12/2008	Discussing the need for O&M with CDPHE	EPA CDPHE
7) OU 2: Vegetation in need of maintenance.	Perform maintenance as required following the next scheduled annual inspection.	12/2007	Discussing the need for O&M with CDPHE	EPA CDPHE

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8) OU 6: Delay in establishing control of the Mine Pool	Perform remedial action.	Re-evaluate at next five-year review	Bureau of Reclamation (BOR) is undertaking a risk analysis to be completed by 6/08. EPA has begun pumping water from behind blockages in the Leadville Mine Drainage Tunnel to relieve pressure within the tunnel.	EPA BOR
9) OU 8: A portion of Non-Residential Soils Areas, Fluvial Tailing Site (FTS)-1 and FTS-2 remedies in need of repair or replacement.	Modify/repair the existing remedies, as necessary, so that vegetation is established and/or mine waste does not come into contact with California Gulch flows or allow precipitation to pond on the tailing surface.	12/2007	Anticipated in 2009	Resurrection
10) OU 9: An Institutional Control Overlay (ICO) District was established to satisfy ROD required ICs. However, the ICO District was repealed by Lake County in 2006. As a result, concerns remain regarding protectiveness of the remedy.	Formalize ICs	12/2008	Lake County, CDPHE and EPA are preparing an O&M Plan for residential properties in Lake County. This plan will serve as the IC for residual contamination. The plan is expected to be final by 12/08.	EPA Lake County CDPHE

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<p>11) OU 9: Isolated areas of soils in outlying portions of OU9 were identified as containing arsenic at levels that exceed the upper range of plausible action levels for residential land use. The arsenic exceedences occurred where the corresponding lead concentration was below the residential action level. Therefore, it is possible that unacceptable exposure of sensitive populations might occur should these areas be developed.</p>	<p>Consider creation of an IC to address areas of elevated arsenic in soils where development may result in unacceptable exposure of sensitive populations</p>	<p>12/2008</p>	<p>Lake County has agreed to implement an IC which notifies property owners about the potential for elevated arsenic concentrations. Implementation of the IC anticipated by 12/2008.</p>	<p>EPA Lake County</p>
<p>12) OU 9: No O&M Plan exists for remediated properties</p>	<p>Prepare and implement an O&M Plan</p>	<p>12/2008</p>	<p>Lake County, CDPHE and EPA are preparing an O&M Plan for residential properties in Lake County. This plan will serve as the IC for residual contamination. The plan is expected to be final by 12/08.</p>	<p>EPA Lake County CDPHE</p>
<p>13) OU 10: Additional seeps have been identified in the toe and down gradient from the impoundment.</p>	<p>Continue to monitor potential for seeps from the toe of and down gradient from the impoundment.</p>	<p>On-going</p>		<p>Resurrection</p>